

WHAT IS CLAIMED IS:

1. A method for compensating for signal changes of a wavelength-division multiplex signal caused by cross phase modulation in a fiber amplifier, comprising the steps of:

obtaining a control signal from an optical wavelength division multiplex signal, said control signal controlling a phase modulator; and

supplying said control signal with said

10 wavelength-division multiplex signal, in such a manner that signal changes of said wavelength-division multiplex signal caused by cross phase modulation are at least largely compensated for.

15 2. The method as claimed in claim 1, further comprising the steps of:

tapping an optical measurement signal off of said optical wavelength-division multiplex signal;

20 converting said optical measurement signal by opto-electrical conversion into an electrical measurement signal; and

converting said electrical measurement signal into said control signal by an adjustable amplifier.

25 3. The method as claimed in claim 2, further comprising the step of delaying said wavelength-division multiplex signal supplied to said phase modulator with respect to said optical measurement signal.

4. The method as claimed in claim 1, further comprising the step of measuring signal changes at an output of said phase modulator and controlling said control signal.

5 5. An arrangement for compensating for signal changes caused in a wavelength-division multiplex signal by cross phase modulation by a fiber amplifier, having a control circuit comprising:

10 a measurement coupler which couples out a part of said wavelength-division multiplex signal as an optical measurement signal;

an opto-electrical converter which converts said optical measurement signal into an electrical measurement signal;

15 15 an electrical amplifier that has an input supplied by said electrical measurement signal and an output which is an amplified measurement signal as a control signal; and

20 20 a phase modulator having a signal input and a modulation input, said wavelength-division multiplex signal being supplied to said signal input, and said control signal being supplied to said modulation input, a gain being selected such that said phase modulator outputs a wavelength-division multiplex signal which is at least largely compensated for.

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6. The arrangement as claimed in claim 5, wherein said electrical amplifier is adjustable.

7. The arrangement as claimed in claim 5, wherein said wavelength-division multiplex signal is delayed between said measurement coupler and said phase modulator.

5 8. The arrangement as claimed in claim 5, wherein at least one of said measurement coupler and said phase modulator is inserted between a number of sections of an amplifier fiber.

10 9. The arrangement as claimed in claim 5, wherein said arrangement is connected immediately before or after said fiber amplifier.

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